

REMARKS

This is a full and timely response to the above-identified Office Action. The above listing of the claims supersedes any previous listing. Favorable reexamination and reconsideration are respectfully requested in view of the preceding amendments and the following remarks.

Claim Status

In this response, claims 1-2 have been amended for the sake of clarity, form and good syntax; and claims 3-9 have been cancelled. Claims 10-16 were previously cancelled. New claims 17-25, which depend from amended claim 1, have been added. The cancellation of claims 3-9 renders moot all rejections associated therewith.

Applicant has carefully considered the Office Action of January 25, 2007. The present response fully addresses all issues raised by the Examiner, and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Rejections under 35 USC § 112

The rejection of claims 3-9 under 35. USC § 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter, is respectfully traversed. These claims are cancelled thus rendering the rejection moot. This cancellation additionally moots the double-patenting rejection in the manner addressed hereinbelow.

Rejections under 35 USC § 102/103

- 1) The rejection of claims 1-2 under 35 USC 102(b) as being anticipated by Muroi et al. (US 5,480,957), is respectfully traversed.

Muroi et al. teaches organic particles, which are limited to an amine adduct with epoxy resin. The claimed invention, in contrast, calls for composite particles comprising an organic latent curing agent and an inert particle. The composition of the inert particle is described in the specification, *inter alia*, on page 2, paragraph [0025], on page 3, paragraph [0027], which states "...Typical powders that meet these criteria are sulfates, e.g. BaSO₄, or CaSO₄, carbonates," It is submitted that this is not disclosed or suggested in the Muroi et al. reference and thus the claimed particles are accordingly novel in light thereof.

2) The rejection of claims 3-9, under 35 USC § 102(b) in light of Muroi et al. (US 5,480,957) or alternatively, under 35 USC 103(a), as being obvious over Muroi et al., is respectfully traversed.

Muroi et al. teaches a method for forming a curing agent comprising dissolving epoxy resin and an amine curing agent in a solvent. The adduct is precipitated as a solid latent curing agent (see claim 1 of this reference). The product recited in claim 1 of Muroi et al. for example, fails to teach "one or more inert particles" as claimed in claim 1 of the present invention. Muroi et al. teaches a process, which is limited to amine adducts that are not useful for high latency applications such as ink jet applied legend ink and solder mask, that mandatory requires latency of viscosity change of less than 3 centipoise during storage at ambient for period of at least 3 months. Amine adducts fail to provide said latency, whilst DICY, urea derivatives and imidazole do provide said latency. The instant disclosure teaches these high temperature applications on page 4, paragraph [0041].

Furthermore, Muroi et al. fails to teach how to make a composite particle in which the curing agent is activated at temperatures of 160-170°C without a catalyst or 120-150°C with the catalyst of the present invention (page 1, paragraph [0005], Example 1, page 4 paragraph [0042]).

Unlike Muroi et al., the present invention resides in a method of formulating a variety of latent curing agents (see page 3, paragraph [0026], which states "any type are potentially comprised in said particle"). The present invention is not limited to the amine-epoxy adducts taught by Muroi et al. Indeed, in contradistinction to Muroi et al., claim 1 has been amended to recite latent curing agents selected from the group consisting of a urea derivative, an imidazole, a dicyandiamide, mixtures thereof and a precursor thereof. These curing agents are not taught/suggested by the amine-epoxy adducts of Muroi et al.

Claim 1 has been amended to show novelty and inventive step over Muroi et al. and now recites "solid composite latent curing agent particle". Muroi et al. does not teach a composite particle. Amended claim 1 further recites "at least one inert particle", which cannot be distilled from Muroi et al. Amended claim 1 further recites "wherein said at least one latent curing agent is selected from the group consisting of a urea derivative, an imidazole, a dicyandiamide and a precursor thereof.", which is neither taught nor hinted to by Muroi et al.

It is therefore respectfully submitted that claim 1, as amended, is both novel and non-obvious over Muroi et al.

Double Patenting

This rejection is provisionally traversed in that until one of the two applications issues and the scope of the claims of that application can be determined, an effective comparison is not possible.

Nevertheless, claims 3-9 have been cancelled to obviate any perceived overlap with copending 10/762,515 application. Further, claims 37-52 of the co-pending application 10/762,515 have been cancelled and replaced with new claims 53-67. These new claims are directed to:

- "A micron liquid thermosetting ink-jet ink comprising: solid composite curing agent particles, each particle comprising:
- a) an inert particle; and
 - b) a curing agent layered on the surface of said inert particle; impregnated in its porosity, dispersed upon said inert particle, or any combination thereof."

It is therefore submitted that the double patenting issue should be reconsidered and withdrawn.

Newly Added Claims

New claims 17-25 are presented for examination. These new claims depend directly or indirectly from amended claim 1. These claims are intended to add clarity and conciseness to the claimed scope of the invention.

New claim 17 recites the claimed core comprising the at least one inert particle coated by a layer of the at least one latent curing agent. This feature is seen in Figs. 4 and 5A, and by the specification, *inter alia*, on page three paragraph [0033].

New claim 18 calls for the inert particles to comprise inorganic powders, such as of barium sulfate, talc, silica, kaolin, mica and glass. This is supported by the specification on page 3, paragraph [0027].

New claim 19 relates to the curing agent being DICY, which is supported, *inter alia*, by Example 1 on page 4, paragraph [0042]. Likewise new claim 20 relates to the inert particles

comprising barium sulfate. This is also supported , *inter alia*, by Example 1 on page 4, paragraph [0042].

New claim 21 relates to the curing agent being in crystalline form. The present invention teaches crystalline particles of the curing agent on an inert particle (see Figs. 1-2 and description thereof on page 3, paragraph [0029].

New claim 22 relates to the latent curing agent being adapted for activation at temperatures above 120°C. This is supported by page 1, paragraph 5 and Example 1 paragraph [0042] on page 4.

New claim 23 relates to the surface area of the inert particles being in a range of 10-50m²/g., as is taught on page 3, paragraph [0027].

New claim 24 relates to the particle size of the inert particles as being in the range of 0.05 to 0.5 micron as is taught on page 3, paragraph [0027].

New claim 25 relates to the final size of the composite particles as being less than 2 microns. This is supported, *inter alia*, on page 2, paragraph [0027].

Thus, all the new claims are supported by the specification, but do not extend beyond the scope of original claim 1.

Furthermore, in accordance with the present invention, the combination of any type of latent curing agent combined with many types of inert particles provides a very broad range of products, having a correspondingly broad range of process applications, unlike the products taught by Muroi et al., which appear to be unsuitable for PCB processing.

The present invention teaches composite particles in which the inert inner particle prevents fusion between curing agent particles, due to their physical separation by the inert particle (see Fig. 4, for example) during storage, provides better physical properties to final product – especially hardness and heat stability.

It is therefore argued that since claims 1 and 2 cannot be distilled from Muroi et al., new claims 17-25, which depend therefrom cannot be distilled from Muroi et al. Additionally, claims 3-9, now cancelled, could not have been distilled from the teachings of Muroi et al.

The above features of the present invention are neither taught nor suggested by Muroi et

al., and thus it is respectfully submitted that all these aspects of the present invention are novel and inventive over Muroi et al., in accordance with the provisions of 35 USC 102(b) and 35 USC 103(a), respectively.


Conclusion

It is respectfully submitted that the claims of the divisional application, as newly presented in this response are allowable over the art which has been applied in the office action of the parent application. Favorable consideration and allowance of these claims are courteously solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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